

**SIEMENS**

# **MAMMOMAT 3000**

**SP**

Modification

## **Modification Instructions**

Widening of the Radiation Field

**63 99 062**

Register 10  
Print No.: RXB7-230.092.07.01.02

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English  
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## General

The upgrade of the diaphragm plates will result in a larger radiation field on the image receptor.

## Tools required

- Standard service tools
- Centring cross
- Film bag

## Documents required

- Installation and Start-Up Instructions M3000 (RX B7-230.033.01.08.XX)

## Parts included

The modification kit (63 96 985) includes the following parts:

| Qty | Part                     | Part No.  |
|-----|--------------------------|-----------|
| 1   | Diaphragm plate assembly | 63 96 894 |
| 5   | Screw                    | 60 26 439 |
| 1   | Screw                    | 60 23 402 |
| 2   | Screw                    | 60 26 264 |
| 4   | Screw                    | 60 23 444 |
| 10  | Cable tie                | 62 21 753 |
| 10  | Cable tie                | 90 11 370 |
| 1   | Documentation (english)  | 63 99 062 |
| 1   | Documentation (german)   | 64 27 350 |

Spare items for covers:

| Qty | Part  | Part No.  |
|-----|-------|-----------|
| 2   | Screw | 92 15 914 |
| 12  | Screw | 61 87 897 |
| 10  | Nut   | 60 34 706 |
| 2   | Screw | 60 23 428 |
| 2   | Screw | 63 38 649 |

## Time required

Approximately 3 hours for 1 person.

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## Removal

1. System off.
2. Remove the tube head covers; left (1/Fig. 1), right (2/Fig. 1) and front (3/Fig. 1) side.

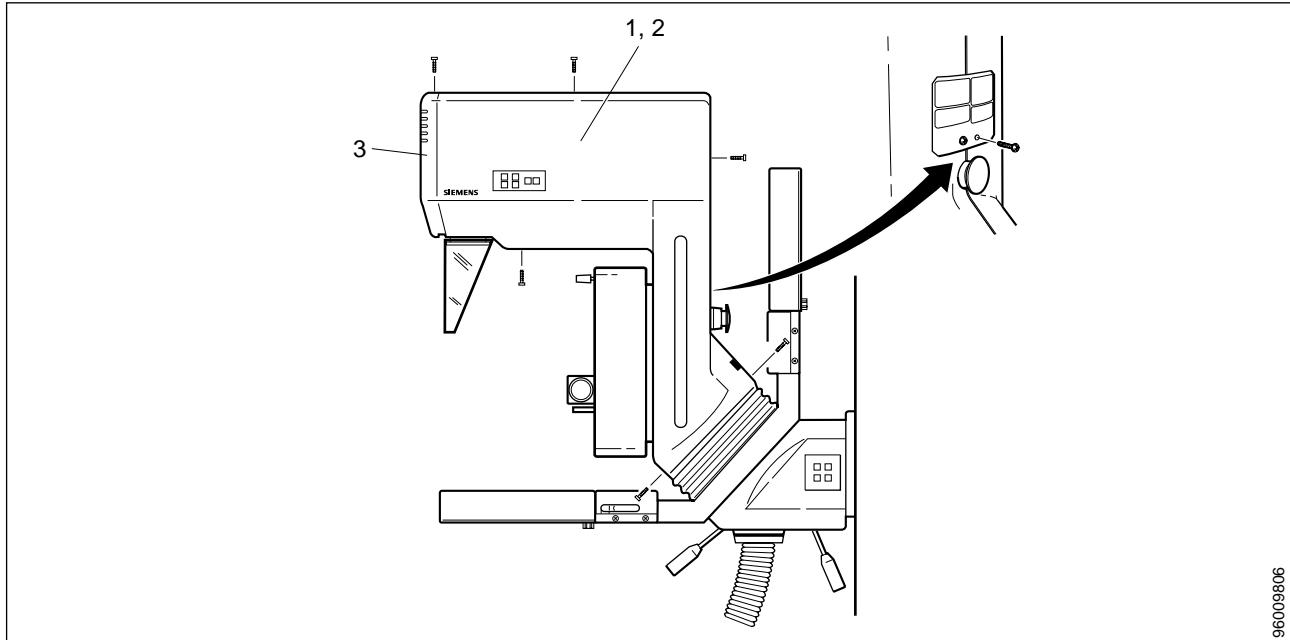


Fig. 1 Removal of tube head covers

3. Remove the collimator cover (1/Fig. 2) by unscrewing the four Allen screws (2/Fig. 2).

**NOTICE**

**Do not remove any other screws than (2/Fig. 2).**

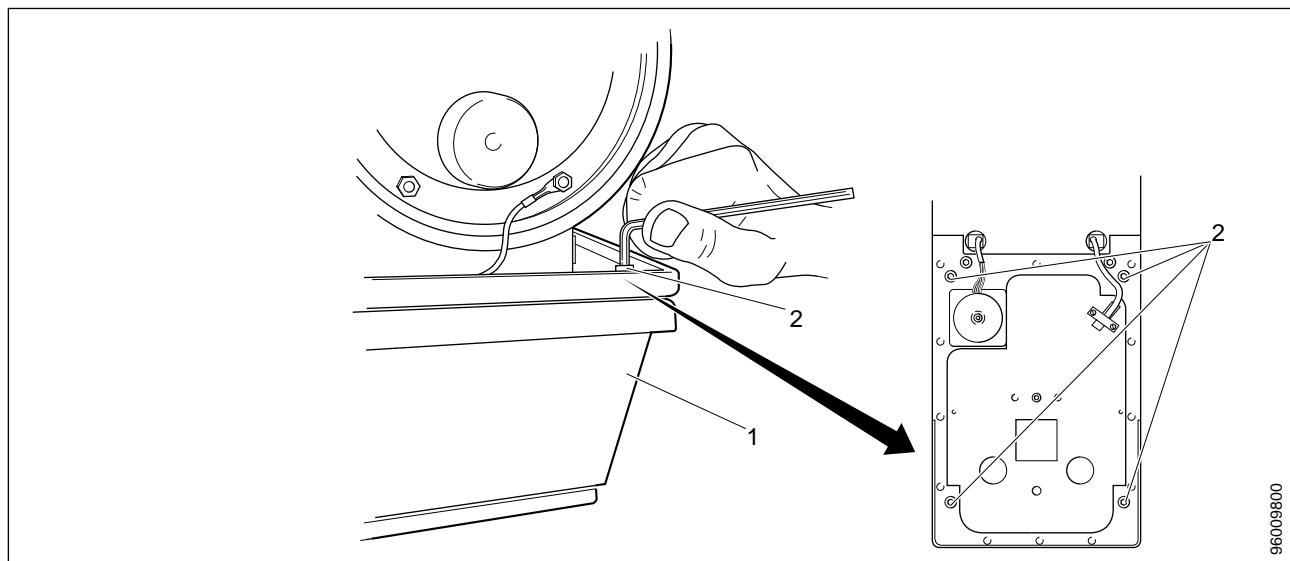


Fig. 2 Removal of collimator cover

4. Let the cover (1/Fig. 2) hang down from the diaphragm holder cable.

**NOTICE**

**Be careful not to damage the filters.**

**NOTICE**

**Before cutting any cable tie, mark the position to make re-installation easier.**

**Cable-tie heads pointing in the wrong direction can prevent the motion of internal diaphragm near end position, caused by contact with the collimator protective cover.**

5. Cut and remove the cable tie (4/Fig. 3) holding the collimator lamp cable (3/Fig. 3).

6. Loosen the cable ties along cables from switches (6/Fig. 3), collimator lamp (3/Fig. 3) and electromagnet (7/Fig. 3).

Disconnect switch cable (6/Fig. 3) at X853, collimator lamp cable (3/Fig. 3) at X894, motor M4 cable (3/Fig. 4) at X854 and switch cable (1/Fig. 4) at X852.

Cable (2/Fig. 4) to electromagnet shall remain connected at X878.

7. Unhook the spring (5/Fig. 3) from the mirror (1/Fig. 3).

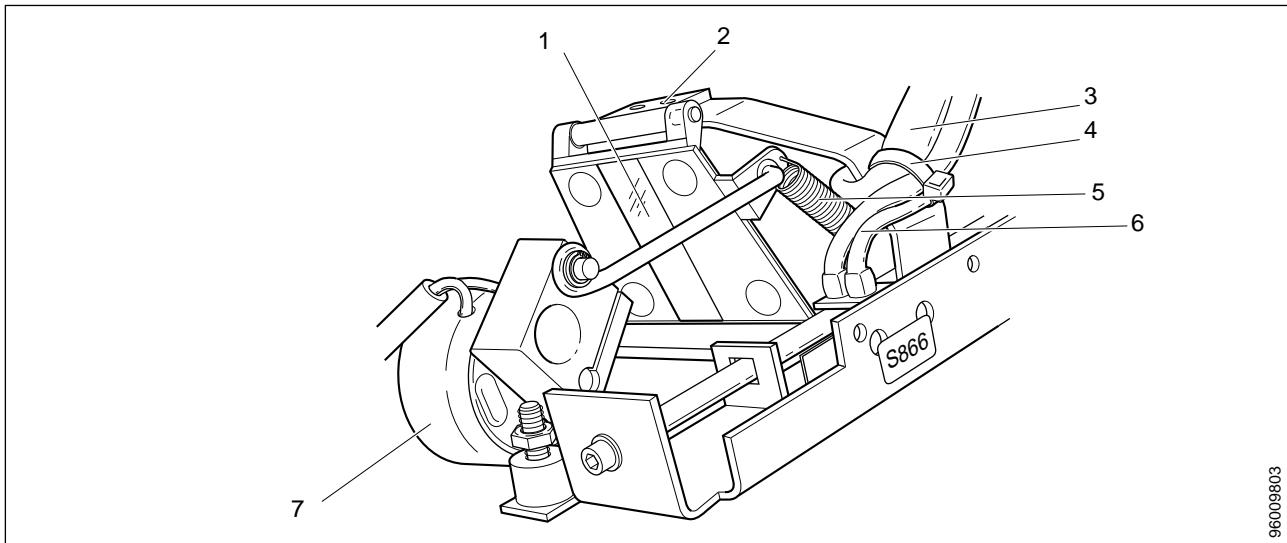


Fig. 3 Diaphragm, from right

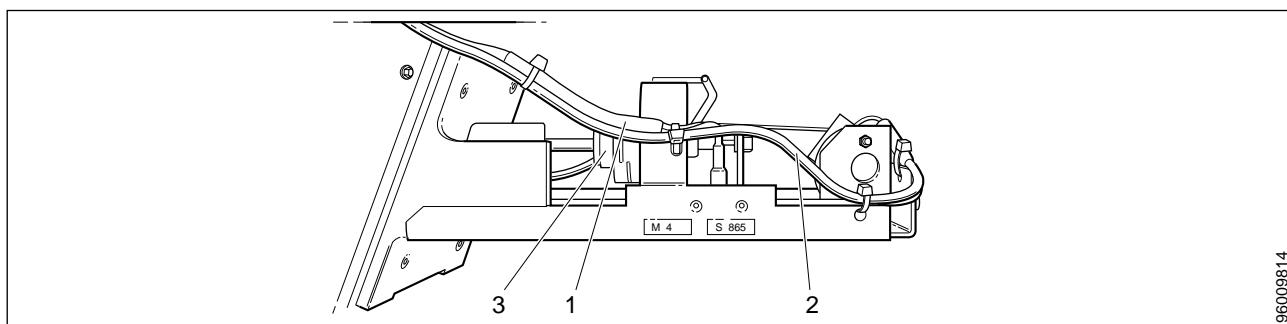


Fig. 4 Diaphragm, from left

8. Remove the four Allen screws (6/Fig. 5).
9. Remove the diaphragm plate (5/ Fig. 5).

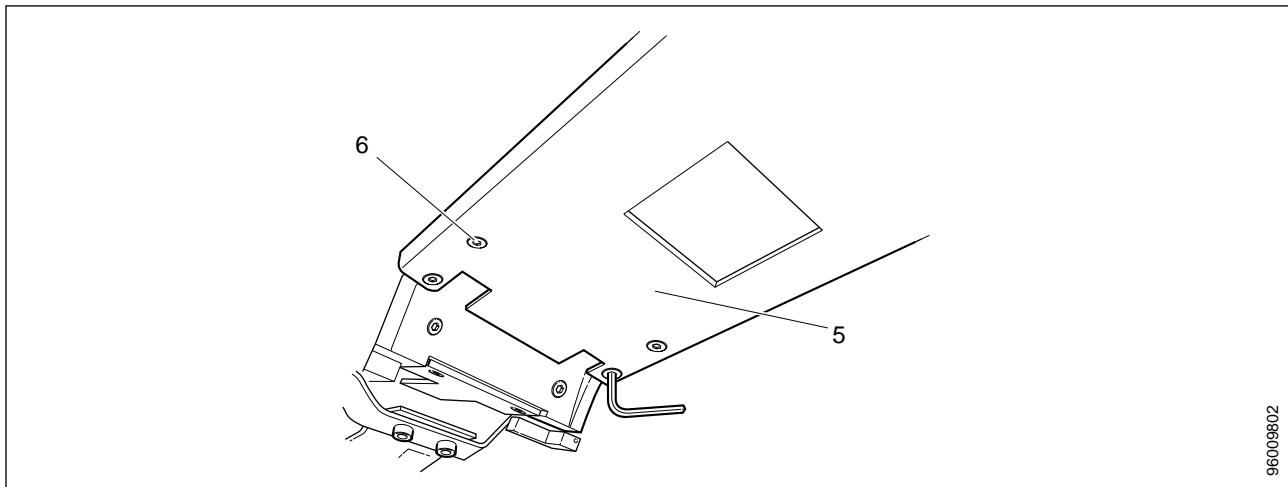


Fig. 5 Removal of diaphragm plate

10. Remove the electromagnet (1/Fig. 6) by unscrewing the two Allen screws (2/Fig. 6).

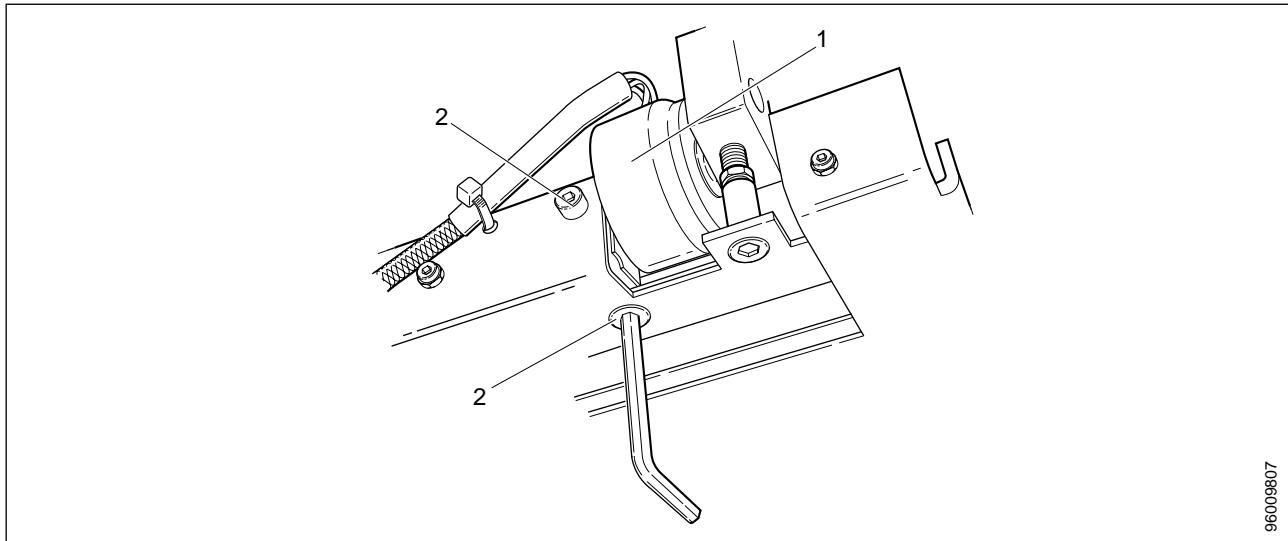


Fig. 6 Removal of electromagnet

**NOTICE**

**Be careful not to damage the mirror.**

11. Remove the mirror (1/Fig. 3) by unscrewing screws (2/Fig. 3).
12. Let the mirror hang down together with the electromagnet.

## Installation of new diaphragm plate

**NOTICE**

**Be careful not to damage the filters.**

1. Install the mirror and electromagnet onto the new diaphragm plate assembly (63 96 894).
2. Lay cable X894 according to (3, Fig. 3).
3. Install the diaphragm plate using screws (60 26 439).
4. Connect the spring to the mirror.
5. Connect previously removed cables (X852, X853, X854 and X894).
6. Fit the cable ties (62 21 753, 90 11 370) in their original position.
7. System on.
8. Select all anode/filter combinations and check that none of the cables are excessively stretched and that there is sufficient space between the cables and the filter wheel.

## General

The nominal width of the radiation field is 248 mm (18 cm x 24 cm table) and 308 mm (24 cm x 30 cm). The field must not extend beyond the front edge of the film-marking label holder (6). On the chest wall side, the radiation field must not extend beyond the film edge by more than 9.5 mm.

The light field must coincide with the radiation field within the following tolerances:

Left edge:      +/- 6.5 mm

Right edge:     +/- 6.5 mm

Back edge:     +/- 6.5 mm

Front edge:    +/- 6.5 mm

## Measuring procedure

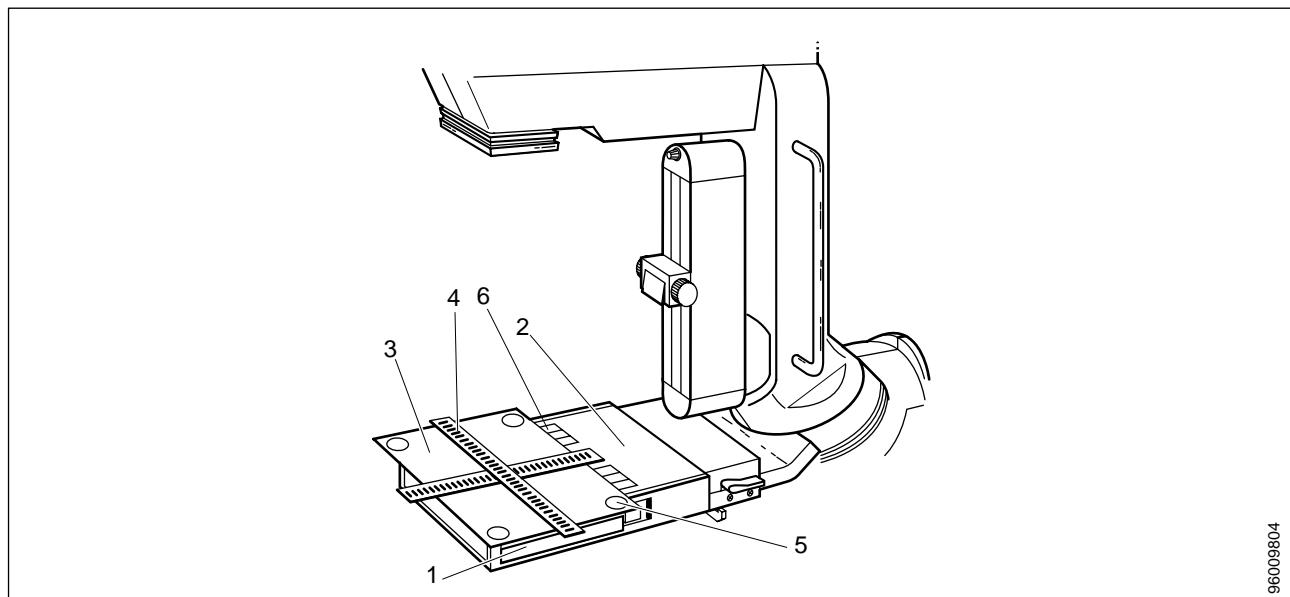


Fig. 1 Checking the radiation field

1. Put film into the cassette (1/Fig. 1). The film shall be centred in the cassette.
2. Insert the cassette into the object table (2/Fig. 1).
3. Place film bag (3/Fig. 1) on the object table. The film bag must extend beyond the chest-wall edge by minimum 10 mm.  
If no corresponding film bag is available, you can place two film cassettes side by side on the object table.
4. Place a centering cross (4/Fig. 1) on the film bag or cassettes.
5. Switch on the light field and mark the edges of the light field with four coins (5/Fig. 1).
6. Write down the values of the centering cross corresponding to the side edges of the object table and the front edge of the film-marking label holder.
7. Release exposure (Mo/Mo).
8. Develop exposed films.

## Evaluation

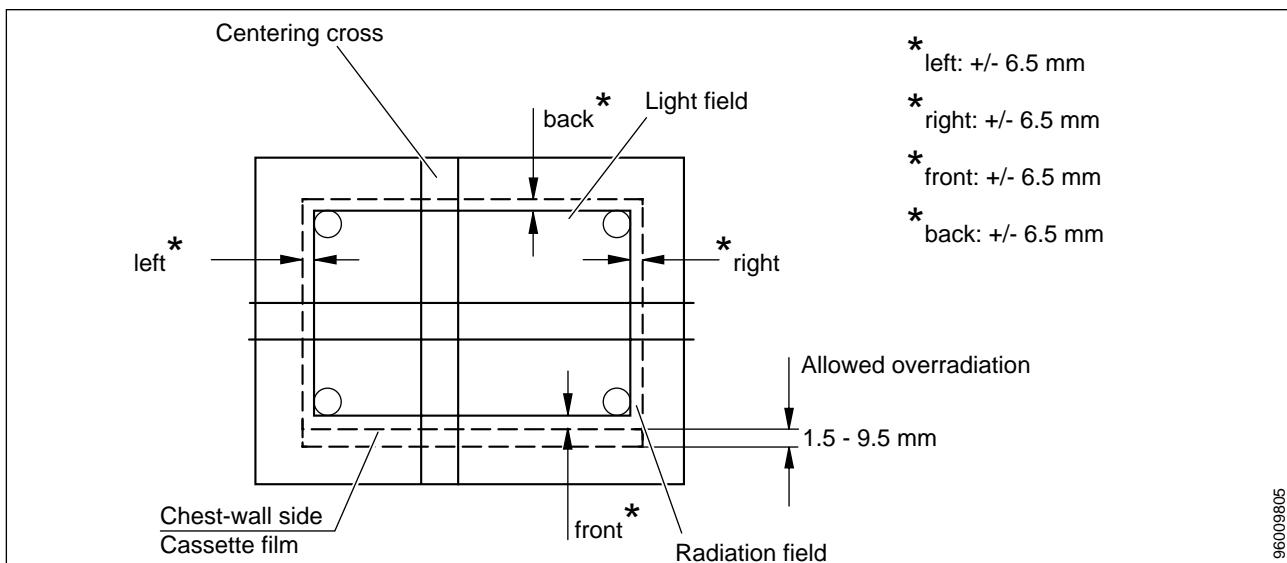


Fig. 2 Field limitation

### Alignment radiation field/light field

1. On the film that was placed in the film bag, mark the light field limit with guidance of the coin marks as shown in Fig. 2 above.  
The maximum divergence between the radiation field and the light field of 6.5 mm must not be exceeded on any side.

### Radiation field limitation

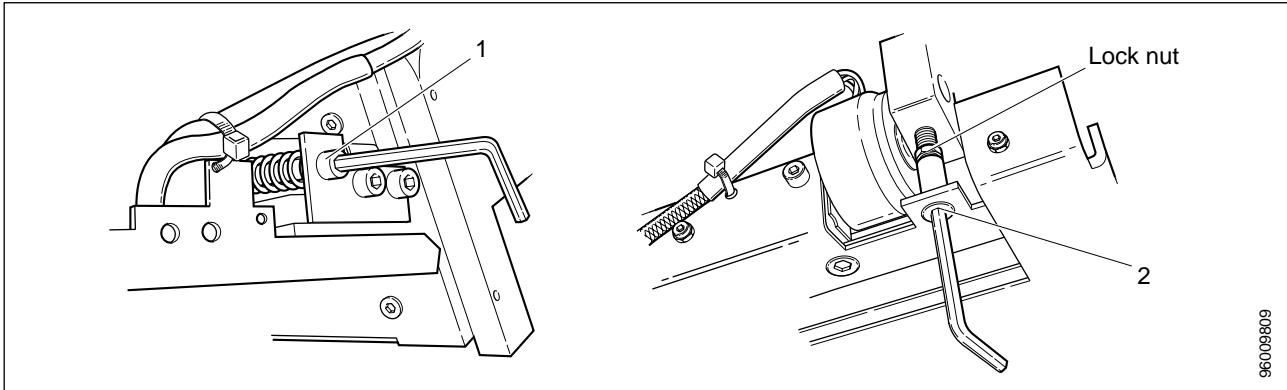
1. The cassette film must be completely exposed on the side facing the chest wall. Compare centering cross marking on both films. The overradiation allowed is maximum 9.5 mm and minimum 1.5 mm.
2. The radiation field must under no circumstances extend beyond the side edges of the object table. The margins to the edges must at least be 7 mm. Compare the values read off on the film-bag film with the values written down in point 6 above.
3. On the nipple side, the radiation field must not extend beyond the front edge of the film-marking label holder.

Correction, see below.

**Repeat this check with all object tables and both "wings" (base plates).**

## Correction

The light field is adjusted sideways with screw (1/Fig. 3) and forwards/backwards with screw (2/Fig.3).



The radiation field is adjusted according to the following procedure:

1. Loosen the screws (2, 3/Fig. 4) that hold the collimator.
2. Adjust the radiation field in chest wall/stand wall direction (longitudinal adjustment) manually by moving the collimator.
3. For lateral adjustment, see Speed Info RX 168-95 (modification kit 63 82 886).

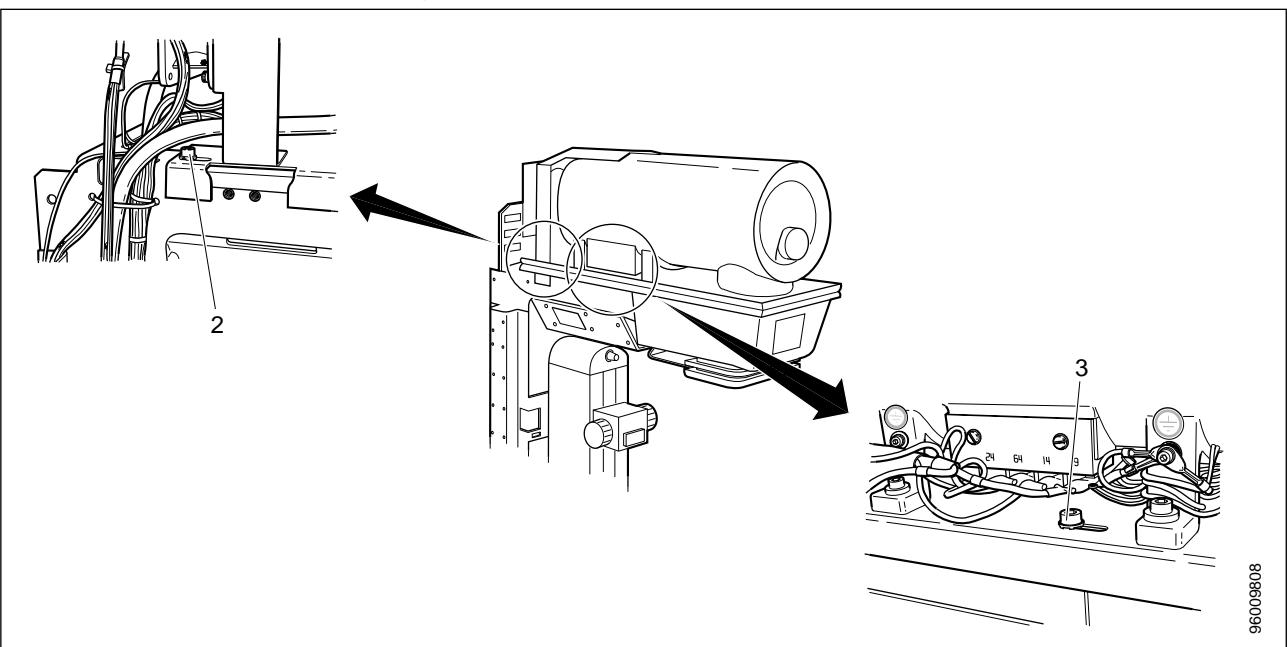


Fig. 4 Adjustment of radiation field

## Final Procedure

1. Install the collimator covers.
2. Install the tube head covers.

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